

Patent No. 6,739,378

Request for Cert. of Correction dated September 14, 2004

Attorney Docket No. 2204-002205



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No. : 6,739,378 *B2* Confirmation No. 6832
Inventor(s) : Kaoro Sugita et al.
Issued : May 25, 2004
Title : Internal Chill Casting Method For Manufacturing
A Cast Product Containing A Pipe Therein
Examiner : Len Tran
Customer No. : 28289

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT
FOR PTO MISTAKE (37 C.F.R. 1.322(a))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: Decision and Certificate of Correction Branch
Patent Issue Division

Certificate
SEP 21 2004
of Correction

Sir:

In accordance with 35 U.S.C. §254, we attach hereto Form PTO/SB/44 and a copy of proof of PTO error(s) and request that a Certificate of Correction be issued in the above-identified patent. The following errors appear in the patent as printed:

Column 2, line 9, "such the manner" should read --such a manner--
(See Amendment After Allowance dated 12/12/2003, page 2, second paragraph, line 2.)

Column 2, line 16, "one, which" should read --one which--
(See Amendment After Allowance dated 12/12/2003, page 2, fourth paragraph, line 1.)

Column 2, line 32, "Such the step" should read --Such step--
(See Amendment After Allowance dated 12/12/2003, page 2, sixth paragraph, lines 3-4.)

Column 2, line 37, "arises a surface" should read --creates a surface--
(See Amendment After Allowance dated 12/12/2003, page 3, first paragraph, lines 1-2.)

Column 3, line 16, "during pouring a" should read --during pouring of a--
(See Amendment After Allowance dated 12/12/2003, page 3, third paragraph, line 2.)

Column 3, line 53, "cylinder in prior" should read --cylinder prior--
(See Amendment After Allowance dated 12/12/2003, page 3, fifth paragraph, line 2.)

Column 3, line 66, "deviation" should read --deviation.--
(See Amendment After Allowance dated 12/12/2003, page 3, seventh paragraph, line 2.)

Column 4, line 2, "pin" should read --pin.--
(See Amendment After Allowance dated 12/12/2003, page 3, ninth paragraph, line 2.)

Column 4, line 15, "facing to the" should read --facing the--
(See Amendment After Allowance dated 12/12/2003, page 4, first paragraph, line 4.)

Column 4, line 65, "Such the controlling" should read --Such controlling--
(See Amendment After Allowance dated 12/12/2003, page 4, third paragraph, line 3.)

Column 5, lines 42-43, "Such the controlling" should read --Such controlling--
(See Amendment After Allowance dated 12/12/2003, page 4, fifth paragraph, line 2.)

Column 5, line 67, "by drive of" should read --by the drive of--
(See Amendment After Allowance dated 12/12/2003, page 4, seventh paragraph, line 2.)

Column 6, line 3, "in the manner such" should read --in such a manner--
(See Amendment After Allowance dated 12/12/2003, page 5, first paragraph, lines 1-2.)

Column 6, lines 13-14, "the mold are clamped" should read --the mold is clamped--
(See Amendment After Allowance dated 12/12/2003, page 5, third paragraph, line 2.)

Column 6, line 15, "such the condition, to" should read --such condition to--
(See Amendment After Allowance dated 12/12/2003, page 5, third paragraph, line 3.)

Column 6, line 52, "pipe P is opened" should read --pipe P are opened--
(See Amendment After Allowance dated 12/12/2003, page 6, first paragraph, line 1.)

Column 7, line 21, "regardless its" should read --regardless of its--
(See Amendment After Allowance dated 12/12/2003, page 6, third paragraph, line 3.)

Column 7, line 21, "Such the location" should read --Such location--
(See Amendment After Allowance dated 12/12/2003, page 6, third paragraph, line 3.)

Column 7, line 29, "exposes" should read --is exposed--
(See Amendment After Allowance dated 12/12/2003, page 6, third paragraph, line 8.)

Column 7, line 31, "accounting" should read --due to--
(See Amendment After Allowance dated 12/12/2003, page 6, third paragraph, line 9.)

Column 7, line 55, "20 pieces" should read --Twenty pieces--
(See Amendment After Allowance dated 12/12/2003, page 6, fifth paragraph, lines 3-4.)

Column 8, line 61, "in said the cavity" should read --in the cavity--
(See Amendment dated 9-25-2003, page 3, Claim 8, line 5)

Column 8, line 64, Claim 8, "cavity:" should read --cavity;--
(See Amendment dated 9-25-2003, page 3, Claim 8, line 6)

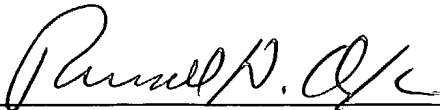
Column 9, line 30, Claim 17, "in said the cavity" should read --in the cavity--
(See Amendment dated 9-25-2003, page 4, Claim 17, line 5)

Column 9, lines 31-32, Claim 17, "within the activity:" should read --within the cavity;--
(See Amendment dated 9-25-2003, page 4, Claim 17, line 6)

Column 10, line 23, Claim 18, "bracket; and" should read --bracket;--
(See Amendment dated 9-25-2003, page 5, Claim 18, line 8)

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By  _____

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 6,739,378 *B2*
 DATED : May 25, 2004
 INVENTOR(S) : Sugita et al.

It is certified that error appears in the above-identified patent and that said Letters Patent
is hereby corrected as shown below:

Column 2, line 9, "such the manner" should read --such a manner--

Column 2, line 16, "one, which" should read --one which--

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Column 3, line 66, "deviation" should read --deviation.--

{W0141800.1}

MAILING ADDRESS OF SENDER:

Page 1

The Webb Law Firm
 700 Koppers Building
 436 Seventh Avenue
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PATENT NO. 6,739,378 *B2*

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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

22 SEP 2004

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO. : 6,739,378 *B2*
DATED : May 25, 2004
INVENTOR(S) : Sugita et al.

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{W0141800.1}

MAILING ADDRESS OF SENDER:

Page 2

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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

PATENT NO. : 6,739,378 *B2*
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Column 10, line 23, Claim 18, "bracket; and" should read --bracket;--

{W0141800.1}

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Page 3

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

22 SEP 2004

Notice of Allowance dated 11-19-2003

Appl. No. 09/756,825

Amdt. dated 12-12-03

Attorney Docket No. 2204-002205



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/756,825 Confirmation No. 6832

Applicants : Kaoru SUGITA et al.

Filed : January 9, 2001

Title : Internal Chill Casting Method for Manufacturing a Cast Product Containing a Pipe Therein

Group Art Unit : 1725

Examiner : Len Tran

Docket No. : 2204-002205

Customer No. : 28289

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AFTER ALLOWANCE UNDER 37 C.F.R. §1.312(a)

Sir:

Please amend the above-identified patent application as follows.

Amendments to the Specification begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on December 12, 2003.

Michelle Pichora
(Name of Person Mailing Paper)

Michelle Pichora 12-12-2003
Signature Date

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 2, line 24, with the following rewritten paragraph:

-- According to the present invention, a controlling member is fixed to a mold in ~~such the manner~~ such a manner that it extends toward a cavity of the mold. A pipe (an insert member) is held in the cavity by insertion of the controlling member into at least one opening of the pipe or by inserting at least one end of the pipe into a hole of the controlling member. Thereafter, a molten aluminum alloy is poured into the cavity so as to enclose the pipe in a case body. --

Please replace the paragraph beginning at page 2, line 30, with the following rewritten paragraph:

-- The controlling member is preferably ~~one, which~~ one which adjustably extends through a wall of the mold into the cavity. Such an adjustable controlling member facilitates positioning of the pipe and ejection of a cast product. When a pin is used as the controlling member, the pipe is held at a predetermined position by inserting a tip of the pin into an opening of the pipe. The pin may be stepped at a middle part toward its tip, or an inner surface of the pipe may be chamfered at the opening, in order to inhibit inflow of a molten alloy into the pipe. --

Please replace the paragraph beginning at page 3, line 8, with the following rewritten paragraph:

-- The stepped pin can have a shaft of a diameter larger than an inner diameter of the pipe, so its heat capacity is big enough to rapidly solidify a molten alloy in contact with the stepped part. Consequently, the pipe is protected from inflow of the molten alloy. Such the step step is favorably formed with a right angle at a middle part of the pin, so as to enable insertion of the pin in face-to-face contact with a surface of the pipe. --

Please replace the paragraph beginning at page 3, line 14, with the following rewritten paragraph:

-- The chamfered inner surface of the pipe at the opening ~~arises~~ creates a surface tension effective for suppressing inflow of a molten alloy into the pipe. Inflow of a molten alloy is also inhibited by coating the pin with a single or complex layer of such elements or compounds as Ti, TiN, TiC, CrN and BN, which are poor of wettability to a molten aluminum alloy, or by chemical conversion of a surface of the pin to a nitrided state or the like. --

Please replace the paragraph beginning at page 4, line 15, with the following rewritten paragraph:

-- One open end of the pipe fixed to the mold may be shut with a plug, so as to expand a gas in the pipe with a heat ~~during pouring~~ during a pouring of a molten aluminum alloy. Such thermal expansion of the gas keeps the interior of the pipe at a positive pressure effective for inhibiting inflow of the molten alloy. --

Please replace the paragraph beginning at page 5, line 11, with the following rewritten paragraph:

-- Fig. 7A is a view illustrating an initial state of a core ~~cylinder in prior~~ cylinder prior to pouring of a molten aluminum alloy into a cavity of a mold. --

Please replace the paragraph beginning at page 5, line 20, with the following rewritten paragraph:

-- Fig. 9 is a graph illustrating an effect of a controlling pin on position of a center of a pipe in a cast product without ~~deviation~~ deviation.

Please replace the paragraph beginning at page 5, line 22, with the following rewritten paragraph:

-- Fig. 10 is a graph illustrating deviation of a center of a pipe in a cast body without use of a controlling ~~pin~~ pin.

Please replace the paragraph beginning at page 5, line 29, with the following rewritten paragraph:

-- A cast product for use as a brake caliper has a cast body C enclosing a pipe P therein, as shown in Fig. 1. The pipe P has one end p_1 opened on a surface of the cast body C and the other end p_2 projected from the cast body C. The cast body C is drilled to a position ~~facing to the~~ facing the pipe P so as to form a hole H for a hydraulic circuit, and a hole B for attachment of a bleed screw is further formed. --

Please replace the paragraph beginning at page 7, line 5, with the following rewritten paragraph:

-- The controlling pin having a tip inserted into an opening of the pipe P may be a cotrolling pin 10 which is stepped 11 at its middle part and/or tapered 12 at its tip, as shown in Fig. 3. ~~Such the controlling~~ Such controlling pin 10 is adjustably provided in the mold 1 in the manner such that it extends through an insertion hole 7 of the mold 1 to the cavity 6. An opening h of the pipe P for insertion of the controlling pin 10 may be either an end opening p_1 (shown in Fig. 4a) or an opening (shown in Fig. 4b) formed at a middle part of the pipe P. --

Please replace the paragraph beginning at page 8, line 9, with the following rewritten paragraph:

-- A pipe P can be held at a predetermined position by inserting its end part to a controlling block 20. ~~Such the controlling~~ Such controlling block 20 may be one having a cave 21 into which an end p_1 of the pipe P is inserted (shown in Fig. 6a) or another having a cave 21 into which a squeezed end of the pipe P is inserted (shown in Fig. 6b). In any case, the same bracket 15 as shown in Fig. 4c may be coupled with the pipe P and inserted into the cave 21 of the controlling block 20, to secure the pipe P at a predetermined position. Inflow of a molten metal can be inhibited by surface treatment of the controlling block 20 in the same way. --

Please replace the paragraph beginning at page 8, line 26, with the following rewritten paragraph:

-- When the core 3 is carried frontward and set in the lower mold member 2 by the drive of the core cylinder 31, the controlling pin 10 or the controlling block 20 is

inserted into the insertion hole 7. Thereafter, a pipe P is located in a cavity of the mold 1 ~~in the manner such~~ in such a manner that a tip of the controlling pin 10 is inserted into a hole h of the pipe P or that one end p_1 of the pipe P is inserted into the controlling block 20, as shown in Fig. 7b. A middle part of the pipe P is put in an insertion groove 4 (Fig. 2) of the core 3. The other end p_2 of the pipe P is fixed by locating the other end p_2 in a positioning groove 8 of the lower mold member 2 (Fig. 2) or by inserting the other end p_2 in a hole of the core 3. --

Please replace the paragraph beginning at page 9, line 5, with the following rewritten paragraph:

-- After the pipe P is coupled with the controlling pin 10 or the controlling block 20 in the cavity 6, the mold 1 ~~are clamped~~ is clamped. A molten aluminum alloy is poured through a gate 5 into the cavity 6 under ~~such the condition, to~~ such condition to enclose the pipe P with the aluminum alloy. At this time, a force is applied to the pipe P due to kinetic and thermal energies of the poured molten aluminum alloy. However, one end p_1 of the pipe P is allowed for axial motion but prevented from dislocation along a radial direction due to coupling with the controlling pin 10 or the controlling block 20. The pipe P is restrained at the other end p_2 between the lower mold member 2 and the upper mold member or the core 3, and at the middle part by the insertion groove 4 of the core 3. Consequently, the applied force is absorbed as axial dislocation of the pipe P without radial dislocation at the end p_2 , where formation of a hole H for a hydraulic circuit is estimated. Of course, the pipe P tends to elongate along a rightward direction in Fig. 2 due to its thermal expansion caused by a heat of the poured molten aluminum alloy. However, such elongation of the pipe P is suppressed by the controlling pin 10 or the controlling block 20, so that the end p_1 of the pipe P enclosed in the cast product is opened on a surface of a cast product at a predetermined position. --

Please replace the paragraph beginning at page 9, line 29, with the following rewritten paragraph:

-- Fig. 7 shows the state that one end p_1 of the pipe P is plugged with the controlling pin 10 or the controlling block 20. However, when a controlling pin 10 or a controlling block 20 is attached to an opening h of the pipe P formed at its middle part, both

ends p_1 and p_2 of the pipe P ~~is opened~~ are opened as such. In such a case, plugs may be attached to both of the opened ends p_1 and p_2 of the pipe P, so as to maintain an interior of the pipe P at a positive pressure during pouring a molten aluminum alloy. Such a positive pressure is also kept by applying a gas pressure to the pipe P from the outside gas source. --

Please replace the paragraph beginning at page 10, line 24, with the following rewritten paragraph:

-- Location of the end p_1 of the pipe P at the inner part is advantageous for formation of a working hole B for a bleed screw without necessity of squeezing the end p_1 of the pipe P ~~regardless its~~ regardless of its diameter. ~~Such the location~~ Such location also enables formation of a working hole B for a bleed screw by the controlling pin 10 without machining the pipe P which is generally soft and poor of machinability. The controlling pin 10 made of tool steel or the like can be shaped to a small size due to its good melting resistance, so as to make the working hole B for a bleed screw smaller in size. If one end p_1 of the pipe P at a side of a bleed screw ~~exposes~~ is exposed on a surface of the cast body C, the pipe P can not be generally made smaller in size ~~accounting~~ due to melting during pouring a molten aluminum alloy. In such a case, a pipe P shall be preparatively squeezed at its end before arrangement in the mold 1, in order to make a hole H for a hydraulic circuit smaller in size. --

Please replace the paragraph beginning at page 11, line 18, with the following rewritten paragraph:

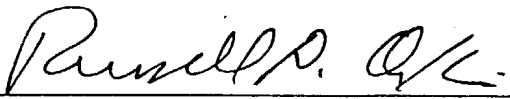
-- After arrangement of the pipe P, an upper mold member was put on the lower mold member 2, and these mold members were clamped together to build up a mold 1. A molten aluminum alloy (JIS A4CAC) held at 700°C was poured into the cavity 6. 20 ~~pieces~~ Twenty pieces of brake calipers enclosing the pipes P therein were manufactured in this way. --

REMARKS

Applicants have amended the specification to correct minor translational errors. No new matter has been added. Entry of these amendments is respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By 

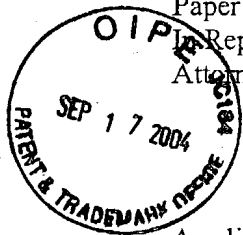
Russell D. Orkin
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Facsimile: 412-471-4094

Application No. 09/756,825

Paper Dated: September 25, 2003

Reply to USPTO Correspondence of June 25, 2003

Attorney Docket No. 2204-002205



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/756,825
Applicants : Kaoru Sugita et al.
Filed : January 9, 2001
Title : INTERNAL CHILL CASTING METHOD FOR
MANUFACTURING A CAST PRODUCT CONTAINING
A PIPE THEREIN
Group Art Unit : 1725
Examiner : Tran, Len

MAIL STOP NON-FEE AMENDMENT

Commissioner for Patents

P. O. Box 1450

Alexandria, VA 22313-1450

AMENDMENT

Sir:

In response to the Office Action of June 25, 2003, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 25, 2003.

Florence P. Trevethan

(Name of Person Mailing Paper)

Florence P. Trevethan
Signature

09/25/2003
Date

22 SEP 2004

Claim 6 (original): The method defined in claim 1, wherein the controlling member has a hole to which an end of the pipe is inserted.

Claim 7 (previously presented): The method defined in claim 1, wherein the controlling member has a surface layer which endures a high-temperature atmosphere caused by pouring the molten aluminum alloy, wherein the surface layer is comprised of elements or compounds selected from the group consisting of Ti, TiN, TiC, CrN and BN.

Claim 8 (currently amended): A method for production of aluminum cast product enclosing a pipe therein, which comprises the steps of:

coupling a bracket having a hole to a pipe;

arranging said pipe at a predetermined position in a cavity of a mold;

holding a portion of said pipe in said the cavity by receiving the portion of said pipe in a groove of a core member, a portion of the core received within the cavity;

inserting a controlling pin, which extends through a wall of the mold to the said cavity, into said hole of said bracket; and

pouring a molten aluminum alloy into said cavity so as to enclose said pipe with said aluminum alloy, wherein said pipe is free to move in an axial direction relative to said mold until said aluminum alloy hardens.

Claim 9 (previously presented): The method defined in claim 1, wherein compressed gas is supplied to the pipe during pouring of the molten aluminum alloy.

Claim 10 (previously presented): The method defined in claim 1, wherein a plug is attached to an open end of the pipe.

Claim 11 (previously presented): The method defined in claim 8, wherein compressed gas is supplied to the pipe during pouring of the molten aluminum alloy.

Claim 12 (previously presented): The method defined in claim 9, wherein the compressed gas is a cool gas.

Claim 13 (previously presented): The method defined in claim 12, wherein the cool gas is an inert gas.

Claim 14 (previously presented): The method defined in claim 11, wherein the compressed gas is a cool gas.

Claim 15 (previously presented): The method defined in claim 14, wherein the cool gas is an inert gas.

Claim 16 (previously presented): The method defined in claim 8, wherein a plug is attached to an open end of the pipe.

Claim 17 (currently amended): A method for manufacturing an aluminum cast product enclosing a pipe inserted therein, which comprises the steps of:

projecting a controlling member into a cavity of a mold;

arranging a pipe at a predetermined position in said cavity of said mold;

holding a portion of said pipe in said the cavity by receiving the portion of said pipe in a groove of a core member, a portion of the core received within the cavity;

~~insertion of~~ inserting said controlling member into at least one opening of said pipe or insertion of at least one end of said pipe ~~in to~~ into a hole of said controlling member; and

pouring a molten aluminum alloy into said cavity so as to enclose said pipe with said aluminum alloy, wherein said pipe is free to move in an axial direction relative to said mold until said aluminum alloy hardens; and

wherein said controlling member is configured to allow axial movement of said pipe without radial dislocation.

Claim 18 (currently amended): A method for production of aluminum cast product enclosing a pipe therein, which comprises the steps of:

coupling a bracket having a hole to a pipe;

arranging said pipe at a predetermined position in a cavity of a mold;

holding a portion of said pipe in said the cavity by receiving the portion of said pipe in a groove of a core member, a portion of the core received within the cavity;

inserting a controlling pin, which extends through a wall of the mold to the said cavity, into said hole of said bracket; and

pouring a molten aluminum alloy into said cavity so as to enclose said pipe with said aluminum alloy, wherein said pipe is free to move in an axial direction relative to said mold until said aluminum alloy hardens; and

wherein said controlling member is configured to allow axial movement of said pipe without radial dislocation.

Claims 19 and 20 (cancelled).